
Modeling psychiatric disorders through reprogramming.

Journal:	Dis Model Mech
Publication Year:	2011
Authors:	K J Brennand, F H Gage
PubMed link:	21954066
Funding Grants:	Development of Induced Pluripotent Stem Cells for Modeling Human Disease, Training in the Biology of Human Embryonic Stem Cells and Emerging Technologies II

Public Summary:

Psychiatric disorders, including autism spectrum disorders and schizophrenia, are extremely complex genetic neurodevelopmental disorders. It is now possible to directly reprogram fibroblasts from psychiatric patients into human induced pluripotent stem cells (hiPSCs) and subsequently differentiate these disorder-specific hiPSCs into neurons. This means that researchers can generate nearly limitless quantities of live human neurons even without knowing which genes are interacting to produce the disease state in each patient. With these new human-cell-based models, scientists can investigate the precise cell types that are affected in these disorders and discover the cellular and genetic defects that contribute to disease initiation and progression. Here, we present a short review of experiments using hiPSCs and other sophisticated in vitro approaches to study the pathways underlying psychiatric disorders.

Scientific Abstract:

Psychiatric disorders, including autism spectrum disorders and schizophrenia, are extremely heritable complex genetic neurodevelopmental disorders. It is now possible to directly reprogram fibroblasts from psychiatric patients into human induced pluripotent stem cells (hiPSCs) and subsequently differentiate these disorder-specific hiPSCs into neurons. This means that researchers can generate nearly limitless quantities of live human neurons with genetic backgrounds that are known to result in psychiatric disorders, without knowing which genes are interacting to produce the disease state in each patient. With these new human-cell-based models, scientists can investigate the precise cell types that are affected in these disorders and elucidate the cellular and molecular defects that contribute to disease initiation and progression. Here, we present a short review of experiments using hiPSCs and other sophisticated in vitro approaches to study the pathways underlying psychiatric disorders.

Source URL: <https://www.cirm.ca.gov/about-cirm/publications/modeling-psychiatric-disorders-through-reprogramming>